

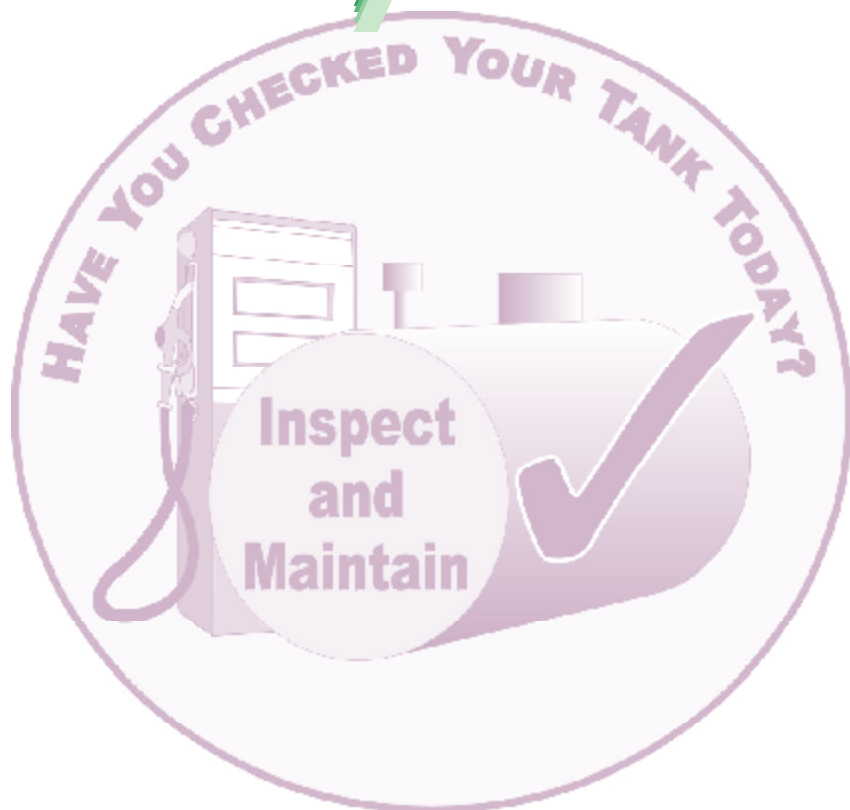
# Tips for Underground Storage Tank Owners and Operators

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## Year 2000 and Beyond



## Tips for Underground Storage Tank Owners and Operators Year 2000 and Beyond

With the passing of the 1998 deadline for owners to comply with requirements for upgrading, replacing, or closing substandard underground storage tanks (USTs), it is easy to think that our work is done. New tanks built to the 1998 standards and existing tanks that have been upgraded with cathodic protection, and internal tank lining are less likely to leak, but they are not failsafe.

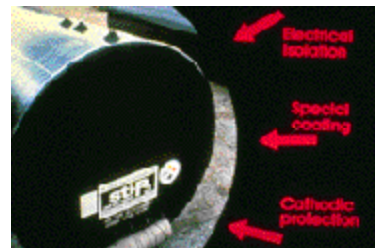
The technical methods remain effective only if there is continued vigilance in proper operation and maintenance. This publication provides guidance to UST owners and operators for proper UST operation and maintenance to avoid system failures, and to provide some measures to reduce cleanup costs if a release is detected.

### What are the Features of New Tanks and Some Upgraded Tanks?

Before we provide the salient elements of proper operations and maintenance, let's review the features of new tanks built after 1988 and upgraded tanks:

1. **Spill protection** is provided by a catchment basin installed around the fill pipe.
2. **Overfill protection** is provided by an automatic shutoff device in the fill pipe, an overfill alarm tied to an electronic level gauge, or a ball float valve installed in the tank side of the vent line.
3. **Corrosion protection** for the tank is provided by one of the following:

- Steel tank has corrosion-resistant coating AND cathodic protection (such as an STI- P<sub>3</sub>®).



- Tank made of noncorrodible material (such as fiberglass).



- Steel tank clad with noncorrodible material (such as an ACT-100® tank) or tank enclosed in noncorrodible material (such as jacketed tanks).
- Steel tanks with or without corrosion-resistant coating and provided with a cathodic protection system.
- Steel tank that has been internally lined with noncorrodible material.
- Steel tank has cathodic protection AND interior lined with noncorrodible material.

#### 4. **Corrosion protection** for piping provided by one of the following:

- Metallic piping (includes galvanized and nongalvanized steel, copper, and aluminum) that has been provided with cathodic protection (by sacrificial anodes or impressed current).
- Metallic piping that has a corrosion-resistant coating AND cathodic protection.
- Piping made of, or enclosed in, noncorrodible material (such as fiberglass).



## Proper Operation and Maintenance, the Human Factor

Owners and operators can assure that their systems continue to operate properly and thereby reduce the risk of a release by using the following methods.

*The following is only for guidance purposes. Owners and operators should consult the operating manual that came with the tank and equipment for details on the methods of operation and maintenance.*

### MAINTENANCE

- ✓ Place signs on the dispenser, encouraging customers to report problems such as spills to the attendant. Some line leak detectors slow the delivery of the product out of the dispenser when the line fails. This may indicate that a leak is detected in the piping system.
- ✓ Understand how your UST system works and read the operation manual for all the components of the UST system.
- ✓ Walk through your facility site once a day to look for obvious signs of discharges (e.g., strong vapor odor and dead or dying vegetation).
- ✓ Be sure delivery drivers understand how your overfill prevention device works.
- ✓ Make sure you know how much product you can actually put in your tank, and how much product is presently in the tank before ordering any deliveries. Do not order more product than a tank can hold!
- ✓ You must know at what liquid level your overfill prevention devices are activated. Make sure that the tank is not overfilled during the delivery operation due to an overfill device responding late. Observe delivery to make sure that the delivery operation is properly conducted.

- ✓ Inspect containment sumps and look under dispensers at least once a month, especially when an automatic sump sensor is not installed in the sump, or at some other regular schedule if sensors are installed in the sumps.
- ✓ Physically check all leak detection sensors periodically for proper operation. Make sure sensors in containment sumps are working properly by either immersing them in water or employing some other method described in the operation manual. Sensors must be installed in liquid tight sumps.
- ✓ Inspect all operational safety equipment (i.e., proper anchoring and operation of shear valves, hose breakaway couplings, and line leak detectors). These devices prevent the product from spilling from pressurized piping systems if the dispenser is hit or when a customer drives off with the hose still in the automobile fuel tank.
- ✓ Physically inspect all overfill devices for proper operation (i.e., do they shut off or set off the alarm at the prescribed level). This step includes extracting ball float valves, when such valves are used, to make sure that the cage has not rusted away.
- ✓ Spill protection is a containment system installed around the fill pipe. This containment basin must be liquid tight and large enough to contain the amount of released product from the delivery hose when a delivery is completed. Make sure that all spill containment basins are free of product after delivery, so that excess product does not float out during a heavy rain. This will also verify that the overfill devices are installed and are operating properly.
- ✓ Schedule deliveries so that staff can be present.

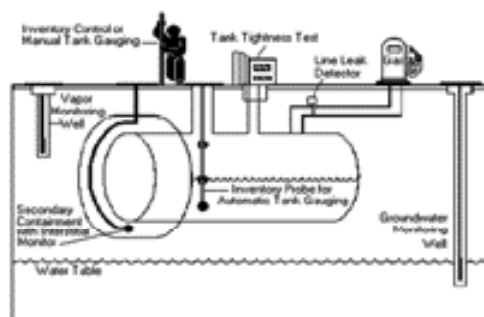
### RELEASE DETECTION

- ✓ Perform quantitative three-gallon per hour leak tests on both mechanical and electronic line leak detectors. These



devices are very important, because they are designed to guard against catastrophic releases.

- ✓ Conduct annual tests on electronic line leak detectors. Make sure that the leak detection method chosen is appropriate for your tank system. You are allowed to choose a leak detection method from the monthly monitoring methods, such as an automatic tank gauging (ATG) system, vapor monitoring system, groundwater monitoring system, interstitial monitoring if you have a secondary containment system, or Statistical Inventory Reconciliation (SIR) method. Always remember that only tanks that have a storage capacity of 550 gallons or less can be provided with manual tank gauging as a stand-alone method of release detection. These cannot be used for motor vehicle fueling.
- ✓ Test and calibrate all leak detection devices per manufacturer's recommendations, and test the mechanical line leak detector, or have it tested, at least annually, to make sure that it is functioning as recommended by the manufacturer.
- ✓ If you are using an ATG system, make sure that daily inventory of product in each tank, and sales and deliveries, are recorded and reconciled at least once a month as required in the Michigan Underground Storage Tank Rules (MUSTR). Also, make sure that the ATG is placed in the test mode at least once every month and a conclusive test result must be obtained. Please keep in mind that some in-tank continuous leak detection monitors do not require the monthly reconciliation process, but a conclusive monthly test will still be required. Check with the manufacturer or supplier of the system used at your facility to find out if your system qualifies.



- ✓ Prior approval is required for vapor monitoring and groundwater monitoring systems. These systems have not yet been approved for general use in Michigan.
- ✓ If interstitial monitoring is chosen, then the UST system is a double-wall system and the interstitial space must be monitored manually every month or a continuous leak detection sensor must be provided in the interstitial space. This sensor must be tested periodically to make sure that it is operating properly.
- ✓ If SIR is the chosen method of leak detection, prior approval by the Storage Tank Division (STD) is required. If your facility has been approved, remember that only trained employees can provide the inventory data collected for the SIR service provider. If you choose a stand-alone SIR system, remember that this will require prior approval and that

you have to verify that you own the tank systems for which the SIR stand-alone system is used.

## CORROSION PROTECTION - TESTING

- ✓ You must know the type of corrosion protection provided for your tank and for your piping. If an impressed current system is used, then you must know how to check and find out if the system is operating to protect your tank system from corrosion. The MUSTR requires testing of the cathodic protection system every three years. These rules also require inspections of the rectifier every 60 days if the cathodic protection system is an impressed current system, and the test conducted every three years must be performed by a qualified cathodic protection tester to make sure that the system is in continuous operation.
- ✓ If corrosion protection is provided by internal lining of the tank, then keep in mind that this tank must be



inspected by human entry within ten years and every five years thereafter unless cathodic protection is also provided within one month of the lining or the internal inspection. The internal inspection must conclude that the tank wall thickness and structural integrity are sufficient and that the lining is still performing to the original specification.

- ✓ STI- P ® tanks must be tested every three years. If the corrosion protection is no longer adequate to protect the tank, then another corrosion protection system must be designed for this tank in accordance with the MUSTR, or the tank must be removed.

## RECORD KEEPING

- ✓ Documentation and record keeping is required for compliance with the state requirements. Make sure that the owner facility file contains all records of the repairs performed on your tank systems for the life of each system. The following records have to be kept by owner/operator for review by the STD for the period indicated:
  - Tank and piping tightness test (5 years)
  - Performance Claims for Release Detection (5 years)
  - Sampling, testing, monitoring (2 years)
  - Calibration, maintenance, and repair of release detection equipment (2 years)
  - Schedules of required calibration and maintenance for release detection equipment (5 years)

## Need More Information?

For forms, brochures, regulations and latest program updates visit the Storage Tank Division web site “[www.deq.state.mi.us/std](http://www.deq.state.mi.us/std)”. If you have

any questions, please contact a Hazardous Materials Storage Tank Inspector in the district office serving your area (see page 6 for the district office locations and phone numbers).

You may also e-mail your questions to [DEQ-STD-TANKS@state.mi.us](mailto:DEQ-STD-TANKS@state.mi.us)

You may also subscribe to the Storage Tank Division listserver to obtain e-mail updates of new program information, regulations and forms. To subscribe to the Storage Tank Division listserver, visit “[www.state.mi.us/listserv/subscribe.html](http://www.state.mi.us/listserv/subscribe.html)” and check “DEQ-STD.”

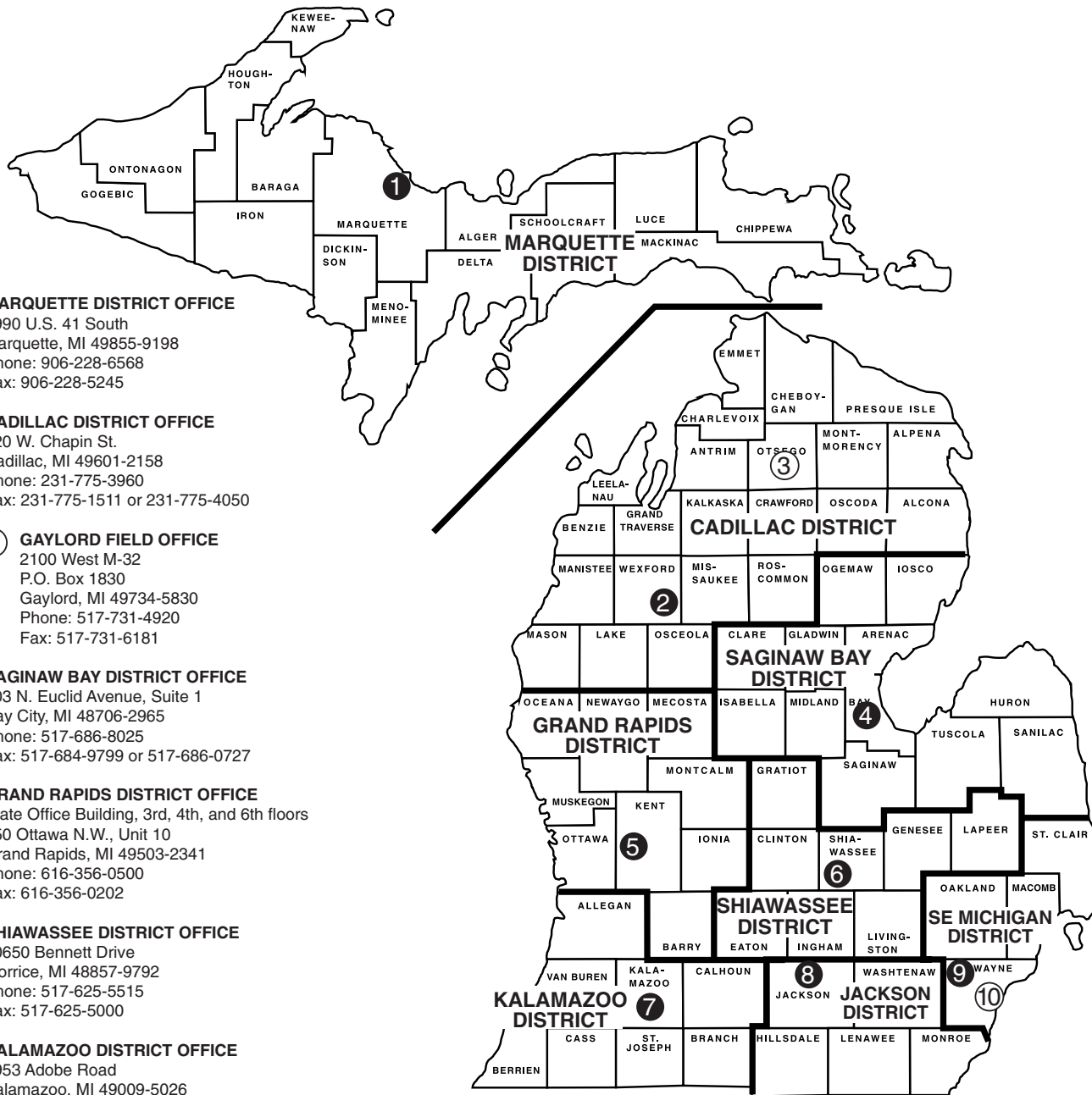




# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

## District and Office Boundaries and Locations

John Engler, Governor • Russell J. Harding, Director



### 1 MARQUETTE DISTRICT OFFICE

1990 U.S. 41 South  
Marquette, MI 49855-9198  
Phone: 906-228-6568  
Fax: 906-228-5245

### 2 CADILLAC DISTRICT OFFICE

120 W. Chapin St.  
Cadillac, MI 49601-2158  
Phone: 231-775-3960  
Fax: 231-775-1511 or 231-775-4050

### 3 GAYLORD FIELD OFFICE

2100 West M-32  
P.O. Box 1830  
Gaylord, MI 49734-5830  
Phone: 517-731-4920  
Fax: 517-731-6181

### 4 SAGINAW BAY DISTRICT OFFICE

503 N. Euclid Avenue, Suite 1  
Bay City, MI 48706-2965  
Phone: 517-686-8025  
Fax: 517-684-9799 or 517-686-0727

### 5 GRAND RAPIDS DISTRICT OFFICE

State Office Building, 3rd, 4th, and 6th floors  
350 Ottawa N.W., Unit 10  
Grand Rapids, MI 49503-2341  
Phone: 616-356-0500  
Fax: 616-356-0202

### 6 SHIAWASSEE DISTRICT OFFICE

10650 Bennett Drive  
Morrice, MI 48857-9792  
Phone: 517-625-5515  
Fax: 517-625-5000

### 7 KALAMAZOO DISTRICT OFFICE

7953 Adobe Road  
Kalamazoo, MI 49009-5026  
Phone: 616-567-3500  
Fax: 616-567-9440

### 8 JACKSON DISTRICT OFFICE

301 E. Louis B. Glick Highway  
Jackson, MI 49201-1556  
Phone: 517-780-7690  
Fax: 517-780-7855

### 9 SOUTHEAST MICHIGAN DISTRICT OFFICE

38980 Seven Mile Road  
Livonia, MI 48152-1006  
Phone: 734-953-8905  
Fax: 734-953-0243 or 734-953-1544

### 10 DETROIT FIELD OFFICE

300 River Place, Suite 3600  
Detroit, MI 48207  
Phone: 313-392-6480  
Fax: 313-392-6488

9 denotes district office

10 denotes field office

### STORAGE TANK DIVISION MAIN OFFICE

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333 S. Capitol, 2nd Floor  
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Lansing, MI 48909-7657  
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Fax: 517-335-2245  
Email: [deq-std-tanks@state.mi.us](mailto:deq-std-tanks@state.mi.us)

Report Underground Storage Tank Releases:  
800-642-4878

### STD Web Site

[www.deq.state.mi.us/std](http://www.deq.state.mi.us/std)